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U.S. effort to protect research may kill it off, scientists fear

By Len Ackland
and Terry Atlas

PROF. HAJIME Sakai was shocked last month when Defense Department officials ordered him at the last minute not to present two technical papers at a scientific conference in San Diego.

"All the information in my papers was available in open literature or developed as the result of our experiment," says Sakai, 54, a physics teacher at the University of Massachusetts. Although his research in atmospheric physics was funded by the government, it was not classified secret. Indeed, it couldn't have been under the university's rules that all research results be freely and openly circulated.

The government action against Sakai was not isolated. Defense Department censorship resulted in more than 90 of some 500 research papers being withdrawn from presentation at the 26th international symposium of the Society of Photo-Optical Instrumentation Engineers in late August.

The San Diego affair highlights the mounting conflict between the government's exercise of export controls to protect national security versus the need to nourish the free flow of technical information. The conflict has broken into the open because of the Reagan administration's broad crackdown on dissemination of sensitive technological know-how, including information produced in universities and scientific laboratories.

"WHAT HAPPENED in San Diego is very serious," says Gerald Lieberman, vice provost and dean of graduate studies and research at Stanford University. "It is a prototype of just the thing we fear."

Defense Department officials say they took action because four Russians attending the conference could have gleaned valuable information on sensitive U.S. technology in weapons systems and sophisticated instrumentation using optical systems and

The high-tech crackdown

The U.S. government has launched a major effort to stem the flow of militarily sensitive technology to the Soviet Union. The last of a three-part series examines the conflict between limiting access to information deemed vital to the national security versus the need to nourish the free flow of technical knowledge.

computers. They dispute the contention of many authors, such as Sakai, that their papers concerned basic, rather than applied, research.

"The sense here is that a significant security disaster was averted by the action taken," says Stephen Bryen, deputy assistant secretary of defense for trade and security policy.

Scientists and academicians interviewed by The Tribune don't dispute the government's need to control critical military technology. And they agree that the Soviets, whose closed society inhibits the flow of information, benefit from contact with the open Western countries. But they add that Russian scientists have good ideas and that the administration underestimates the value of even limited U.S. access to Soviet know-how and that nation's scientists.

THE SCIENTIFIC community fears that the administration is casting its control net so wide that it will choke off internal as well as external communication and thus harm this country's ability to innovate.

"The danger is that the administration will kill the baby to keep it from being stolen," says a scientist and longtime Defense Department consultant on export controls.

Apart from the actions taken in San Diego, the government's crackdown

is being felt elsewhere:

- A long-term, \$225 million Defense Department program funding corporate and university development of advanced electronics to enable the U.S. to maintain its lead in military electronics has become a "lightning rod attracting the concerns of the academic community," according to a National Academy of Science study. Major universities have declined to participate in this Very-High-Speed-Integrated-Circuits (VHSIC) program because of restrictions against having foreign nationals work on it and limits on the publication of research results, the study found.

- Plans for the Soviet Union to ship about \$1 million worth of high-technology equipment next year to the Fermi National Accelerator Laboratory outside Chicago for use in a cooperative basic science experiment in particle physics may be jeopardized by the administration's refusal early this year to renew the agreement for this and other projects that have been in place for several years. This has occurred despite the administration's assurance that basic science will not be affected by technology export controls.

- Last spring the State Department tried to restrict what Soviet robot expert Nikolay Umnov could see on his planned visit to Stanford University. After the university protested these restrictions as unnecessary and damaging to scientific endeavors, State seemingly relented but then refused to issue Umnov a visa.

THE ADMINISTRATION is expanding up on previous government efforts to keep sensitive technology from going to communist countries. For example, in early 1980, just weeks after the Soviet invasion of Afghanistan, scientists from the USSR and its allies were barred by the Carter administration from attending two international conferences in California on computer technology

STATINTL CONTINUED

Pentagon pondering ways to keep high-tech secrets

By James Coates

Chicago Tribune Press Service

WASHINGTON—Defense Secretary Caspar Weinberger is considering a scheme to assign the National Guard or other military units to police the nation's shipping docks in an ambitious drive to halt the flow of U.S. high-technology secrets to the Soviet Union, The Tribune has learned.

The controversial move, still being debated at top Pentagon levels, would require amending current laws that are designed to prevent the sort of police-state abuses experienced in the communist bloc.

However, it was learned, Weinberger already has approved efforts to seek some changes in the laws to permit Pentagon officials to provide money and technical assistance to the U.S. Customs Service agents now inspecting packages bound for the Soviet Union and Eastern Europe.

The issue of assigning military personnel arose because the Reagan administration successfully persuaded Congress late last year to allow Navy and Air Force units to help law enforcement agencies in their war against illegal drugs in South Florida.

SPECIFIC LEGISLATION is required whenever military manpower or money is used for civilian law-enforcement activities. The Posse Comitatus Act of 1877 bars the military from arresting civilians or seizing civilian property.

Legal scholars frequently credit the act with keeping the military out of law enforcement and sparing Americans such nightmares as those created when the Gestapo was formed in Nazi Germany.

One knowledgeable administration official stressed that so far Weinberger has approved only provisions that deal with furnishing money and advice to civilian law officers.

However, the 1877 act covers even that limited Pentagon role in law enforcement and, therefore, legislation would be required before the Defense Department could become involved, he said.

ONCE CONGRESS considers allowing the Pentagon to furnish money, it could broaden the scope of the program to include assigning personnel to help Customs agents inspect shipments. The source acknowledged that some top advisers are urging such a step.

He explained that advocates of assigning military personnel to police shipping docks argue that many members of the National Guard work in the computer industry and other high-technology areas and therefore already have the expertise to spot sensitive shipments.

Many top administration figures, such as Asst. Commerce Secretary Lawrence Brady and former deputy CIA director Adm. Bobby Ray Inman, have warned that the drain of U.S. technology to the Soviets has seriously impaired national security.

Inman, who retired this spring, described the loss of secrets to the Soviets as a "hemorrhaging" and urged such extreme measures as censorship of papers written by scientists at colleges and universities.

Brady, assistant secretary of commerce for trade administration, has long warned that many of the Soviets' major weapons were developed with technology

● The high-technology crackdown has resulted in 690 seizures and the discovery of a Japanese spy ring. In Business.

stolen from the U.S. Meanwhile, the U.S. has been spending vast sums to counter these weapons.

A FREQUENT METHOD used by the Soviets to obtain U.S. high technology is to have agents in a foreign country buy the items from a U.S. company.

Many foreign citizens can obtain the U.S. licenses and other permits for export that are denied to Soviets and citizens of other communist bloc countries.

A second tactic is to ship the materials in question without obtaining a license.

In both cases, the Customs Service needs inspectors trained in the technologies being used to separate the legitimate shipments from those in which diversions are attempted.

Officials noted that a year ago, when Pentagon officials began exploring a possible role in the technology drain, only four Customs agents were assigned to this task.

Since then, the Treasury Department — the agency that controls the Customs Service — has assigned more than 100 agents to inspect shipments for high-technology violations.

THE STEPPED-UP enforcement scheme — called Operation Exodus — has halted the illegal sale of more than \$50 million worth of sophisticated devices, said a Treasury spokesman.

To date, the Pentagon's only role has been supplying a loose-leaf notebook filled with pictures and technical descriptions of which computer chips, lasers, transistors and other items may not be shipped to potential adversaries.

These books, called "mushroom books" by Customs agents, often enable an untrained law officer to spot diverted shipments. "That's as far as we can go legally," said one top Weinberger aide.

He acknowledged that Weinberger has decided to press Congress for a bigger role at the request of Treasury Secretary Donald Regan. The Treasury secretary had complained to the Defense secretary that he was having trouble persuading an economy-minded Congress to budget additional enforcement funds.

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SUBJECT Intelligence Reporting in Central America

CARL KASELL: The House Intelligence Committee released a 47-page report yesterday criticizing certain aspects of American intelligence reporting on Central America. NPR's Bill Buzenberg says that the House study found serious lapses in the objectivity of some intelligence reports.

BILL BUZENBERG: The issue raised by the House report is this: Has the Reagan Administration's tough policy on Central America skewed intelligence reporting on that region? American intelligence agencies would answer no. But the report by the House Oversight and Evaluation Subcommittee says yes, in some instances.

Subcommittee Chairman Charles Rose of North Carolina says their findings were released yesterday over the objections of intelligence agencies in order to prod them in public.

REP. CHARLES ROSE: We generally give them nothing but praise. But on occasion we find some things that we think need to be corrected.

BUZENBERG: What needs to be corrected, Rose says, are instances where intelligence reporting on Central America appear to bend to Administration policy.

REP. ROSE: There were some overstatements, some oversimplifications, some almost misinformation in some cases, that if continued could fall into a pattern of having the policymakers driving the intelligence, rather than the intelligence being independent.

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THE WASHINGTON POST
23 SEPTEMBER 1982

Experts Back Fund for Soviet Studies Here

By Michael Getler
Washington Post Staff Writer

American government, military and university specialists warned yesterday that the nation is in danger of losing its older scholars in Soviet affairs without replacing them with enough fresh talent at a time when a new generation of leaders is about to emerge in Moscow.

The specialists gathered on Capitol Hill to testify before a Senate subcommittee headed by Sen. Richard G. Lugar (R-Ind.), who is cosponsoring a bill that would use government funds to set up a \$50 million endowment to support advanced Soviet studies in this country.

"The hard truth is that our national capacity to analyze the views and actions of our primary adversary... is seriously eroding," Lugar said. "Nearly half of the recognized academic experts currently working on Soviet affairs will be dead or retired by the end of the 1980s, and there are few new students to replace them."

Lugar, who chairs the Senate Foreign Relations European affairs subcommittee, claimed that the Soviets have more than 7,400 specialists on America working with 12 Moscow research institutions. While he gave no comparable U.S. statistics, Lugar said that fewer than 200 Americans will complete doctoral-level training in Soviet studies this year.

Referring to the proposed legislation, Dr. Howard R. Swearer, president of Brown University, told the panel that "if you don't do something like this soon," the structure of expertise on Soviet matters built up over the last 20 to 30 years "will begin to crumble."

"The best young people are not going into it" anymore, Swearer said, as funds from private organizations such as the Ford Foundation, which once spent \$40 million a year on such studies but now spends about \$2 million, seem "gone forever." Graduate student competence in the Soviet language is also on the decline, he said.

Retired admiral Bobby Ray Inman, former deputy director of the Central Intelligence Agency,

testified that while the United States was good at technical intelligence, there have been many times when the country was "subject to surprise because we did not understand events," and there have been "many occasions when we underestimated what the Soviets would eventually do."

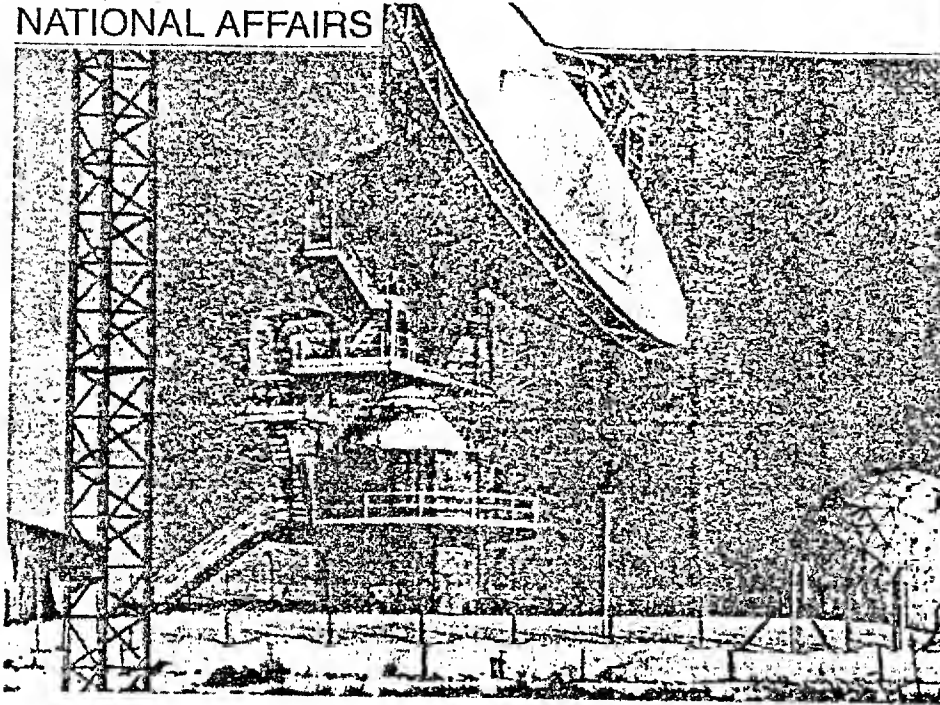
The fault, he said, frequently could be found in the tendency of well-intentioned analysts to do "mirror-imaging" based on their experience but not on a real understanding of what motivates individuals in other societies.

Maj. Gen. William Odom, assistant Army chief of staff for intelligence and a member of the White House National Security Council staff under President Carter, agreed that "the big intelligence failures of the 1980s and 1990s... are likely to be in analysis."

Odom bemoaned the boom-to-bust nature of Soviet studies in this country and said the crucial need is quality rather than quantity.

The endowment is meant to be self-sustaining after the initial appropriation, with interest from the \$50 million supporting the studies.

NATIONAL AFFAIRS



NSA installation at Yorkshire, England: A sprawling network of listening posts, satellites, computers and antennas

reter Dunne—London Sunday Times

Unveiling the Secret NSA

Judging by the sheer size of his operation, America's most important intelligence officer is an Air Force lieutenant general named Lincoln Faurer, the director of the National Security Agency. It is Faurer's NSA—not the CIA—which owns and operates the bulk of U.S. intelligence-collection systems: everything from "aquacade" satellites in orbit 22,000 miles above the Indian Ocean to massive "antenna farms" caged in the West Virginia hills. The global communications the NSA intercepts and decodes give the government its single most important source of intelligence. NEWSWEEK has learned, for example, that during the Falklands war, the NSA broke the Argentine code—allowing crucial information to be passed to the British about the disposition of Argentine forces.

For all its influence, NSA remains the least known of the intelligence agencies. For most Americans, the National Security Agency does not exist—or is fuzzily confused with the National Security Council. That is exactly the way NSA wants it, since success in eavesdropping depends on the target's naive belief that no one is listening. But that is about to change with the publication this month of a new book, "The Puzzle Palace," by Massachusetts lawyer James Bamford.* Bamford, 35, unveils in eye-glazing detail the organization and installations of "America's most secret agency"—a worldwide network of satellites, listening posts, computers and antennas that can, Bamford implies, intercept virtually all international telex, telegram and telephone conversation.

Knowledgeable sources say Bamford's tome is chockablock with errors that will no doubt allow NSA to denounce it as "grossly distorted" or "wildly exaggerated." But Bamford has nevertheless painted a fascinating picture of the massive agency that commands the largest share of the secret U.S. intelligence budget, will soon have more floor space at its Fort Meade, Md., headquarters complex than any U.S. agen-

*A new book tells how
America's largest
and most clandestine
intelligence agency
spies on the world.*

cy save the Pentagon, and churns out 40 tons of classified documents a day.

Although he doesn't mention it in his book, Bamford once worked as a clerk for the naval security group, which operates many of NSA's listening posts, and also served as an informant for the Senate Intelligence Committee during its investigation of eavesdropping on Americans. He insists that nothing in his book came from his own association with NSA and that none of it is classified. But the government belatedly has reclassified some of the information and the book is now being treated as "not to publish or communicate the information," which it says was mistakenly released. Bamford's book details for the first time the physical layout and organization of the massive NSA complex at Fort Meade. The

cannot reclassify documents, but a new executive order, which took effect Aug. 1, claims the government can do just that. The debate is not an idle one. The maximum penalty for publishing classified information about communications intelligence is a \$10,000 fine and 10 years in prison.

Careless: Classified or not, Bamford found much of his information gathering dust on library shelves. As he tells it, his first break came when he was going through papers at the George C. Marshall Research Foundation in Lexington, Va., and came across a copy of an unclassified NSA newsletter for "NSA employees and their families." Bamford successfully argued that if NSA relatives could read the newsletters, so could he—"I'm as good as somebody's cousin," he says—and the agency allowed him to pore through more than 6,000 pages of newsletters dating back to 1952. Although sensitive information had supposedly been deleted, the censors had been careless. Names that were blacked out in headlines appeared unmasked in the body of the story and bits of seemingly harmless information led him to major discoveries. An obituary of one NSA employee, for instance, noted that he had once been stationed in Yakima, Wash.—alerting Bamford to the existence of an NSA listening complex tucked away in the vastness of an Army firing range. When his relations with NSA eventually soured, Bamford turned to other sources. He scoured more government archives and talked to several former NSA officials, including former director Lt. Gen. Marshall Carter.

Bamford's book details for the first time the physical layout and organization of the massive NSA complex at Fort Meade. The

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SCIENCE NEWS
4 September 1982

SCIENCE NEWS of the week

'Remote Censoring': DOD Blocks Symposium Papers

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The federal government moved swiftly and dramatically last week to block the presentation of about 100 unclassified scientific papers at an international symposium on optical engineering in San Diego. The Department of Defense requested that the papers be withdrawn for security reasons, DOD officials said, primarily because scientists from the Soviet Union were present at the meeting. Most of the U.S. scientists and engineers affected did not learn their presentations had been canceled until they arrived at the conference. At the same time, the Department of Commerce sent an early morning telegram Aug. 22—just hours before the start of the meeting—warning conference organizers that any presentation of "strategic" information might constitute a violation of the Commerce Department's regulations covering the export of technology. Scientists from 30 countries attended the conference, the 26th Annual International Technical Symposium of the Society of Photo-Optical Instrumentation Engineers (SPIE).

The actions prompted widespread concern among those at the meeting about the future of international exchange of scientific information at similar conferences.

The government has in the past censored scientific papers through its normal classification process and other screening methods, and it has even evicted Eastern Bloc scientists from several "sensitive" meetings, a Defense Department official acknowledges. These latest actions, however, appear to be unprecedented in their timing, in the large number of papers removed and in the scope of the papers' content. Prior to the last-minute notifications, none of the papers—although all were under DOD contracts—had been deemed sensitive enough in the area of weapons development to have been classified.

Defense Department spokesman James Freeman told SCIENCE NEWS that "it was determined that most of the [withdrawn] papers were covered by the international traffic in arms regulations. And for those to be presented in an international forum which would include Soviet and Eastern European participants, [the papers] would require a munitions license approval before being presented. The information in

most of the papers would have been helpful in the design and development of equipment on the U.S. munitions list."

In addition, Freeman said, the action came late because many of the papers were not submitted to the Defense Department until two or three weeks before they were to be presented. He added that contractors were "not as careful as they should have been" in recognizing the sensitive nature of the contents.

However, a Defense Department official closely connected with the action confirmed that it represents a "step-up" in enforcement, resulting from a "growing sensitivity, on the part of the Central Intelligence Agency and others, toward the Soviet acquisition of Western technology." The official, who asked not to be identified by name, also said the incident "is really a result of the Reagan Administration[s]" attitude toward the release of scientific information to the Soviets. But a spokesman for George A. Keyworth II, President Reagan's science adviser, said Keyworth "hadn't heard anything about" the events in San Diego.

Joseph Yaver, executive director of SPIE, said he was surprised at the number of papers involved and the swiftness of the government's measures. "A significant number of U.S. government-sponsored papers were withdrawn on very short notice," Yaver said in a telephone interview from SPIE's headquarters in Bellingham, Wash., "on the basis that the required clearance procedures had not been fully completed by the authors and that it was not in the national interest to allow the papers to be presented under these circumstances." Yaver said the situation was "totally beyond the control of the society. SPIE regrets that many of those in attendance were unable to obtain the information which might otherwise have been available." He added that SPIE will work with the government to "assure that a similar situation need not occur again."

Along with DOD's action, the Commerce Department's telegram had a chilling effect on conference participants. Although the telegram was seen by many of the attending scientists as a form of intimidation, a Commerce Department spokesman said it was simply a reminder to adhere to

the department's regulations governing technology export. "Saturday night [Aug. 21] at midnight, the people [in Commerce] who sent the telegram out told me—which is what we normally do with this sort of thing—simply that the telegram was alerting them [conference organizers] to the fact that they should refer to the regulations and make sure they comply with them," said Henry Mitman of the Commerce Department's Office of Export Administration and International Trade.

While the Commerce and Defense departments' actions were not related officially, they both seem aimed at research into optics, particularly involving infrared light, and microelectronics research. Even though many projects in these areas do not apply directly to weapons development right now, the Defense Department is concerned about "the potential applications to systems that are maybe three, five

years down the road, maybe longer," said the DOD official. "People are starting to think, 'What could be of help in the weapons system development by a potential enemy—namely the Soviet Union?'"

SCIENCE NEWS has learned that one of the papers withdrawn from the symposium dealt with small, deformable mirrors, which would be used in creating large (3- to 5-meter) mirrors to beam a laser to a satellite and then down to submerged submarines. "You don't have a bunch of dummies that the Soviets send over to these technical meetings," said one of several Defense Department officials who reviewed the paper. "Why give... I won't say aid and comfort to the enemy... but why help them out?"

The apparent escalation of the government's science-related security measures follows repeated warnings by former Deputy Director of the CIA Admiral Bobby R. Inman and others of the potential dangers in giving the Soviets access to U.S. technical and scientific research (SN: 4/3/82, p. 229; 1/16/82, p. 35). And this is not the first time the government has taken security measures involving SPIE. Several months ago, U.S. Customs held up a Japan-bound shipment of books containing the proceedings of a previous SPIE symposium.